SEPTEMBER 5.

The President, Dr. RUSCHENBERGER, in the chair.

Twenty-nine members present.

A paper entitled "Hexagonite, *Goldsmith*, a variety of Tremolite," by Geo. A. Koenig, was presented for publication.

Morphology of the Pear.—Dr. MCGRATH placed on the table abnormal fruit of the pear, in appearance resembling huge acorns. Mr. THOMAS MEEHAN took occasion to note the recent advances of morphological knowledge as explaining such phenomena. Even recent text-books taught that a fruit was but modified leaves. The exact truth is that a fruit is leaves *and branch*. When a bud is being formed in the apple, pear, or similar fruits, it may finally be either a flower-bud or a bud producing a new branch. Varying phases of nutrition decide this question. Exactly the nature of this variation we do not know; but we do know that the growth-force in the bud is arrested by some law of nutrition, and, instead of an elongated branch, what would be its series of spirals are drawn together closely, and the whole modified and made to form a flower. Thus, in the pear, it takes five buds to form one full cycle on a pear branch. When growth is arrested to form a flower this first cycle is transformed into a five-lobed calyx, and generally this becomes much enlarged and fleshy, and covers all the other cycles of buds which go to make up the inner layer of flesh terminating in the petals, carpels or core, and so on. Now, in the case before the Academy, the arresting force was imperfect. It had succeeded in forming the outer or calycine verticillate series of buds into a fleshy matter, giving what here might be called the cup of the "acorn," when the accelerating or branch-producing force gained a temporary advantage and pushed on, forming the acorn-like centre, but only to be soon again arrested. This abnormal pear was indeed nothing more than an effort of the tree to produce a branch after a fruit had been decided on; a struggle which was finally decided in favor of the fruit, if we might speak metaphorically in explaining the case.

Natural Hybrids.—Mr. MEEHAN said that modern naturalists were mostly convinced that new forms were evolved from old ones, but how much the new form had been influenced in its creation by a thus far mysterious law of change inherent in the old form, impelling it to bring forth the new one when nature's own good time had come; or how far external influences acted in bringing about these changes, was still a matter for science to solve. He thought

the innate power of change was much greater than many of our best naturalists were willing to grant. In illustration, he held a letter from a leading botanist inclosing what he contended was a hybrid between *Verbena stricta* and *V. urticæfolia*. Mr. M. described the structure of Verbena. The tube of the corolla was half an inch in length, and narrow, and only insects of a large size and long trunks could reach to the bottom for honey. The anthers were curved just above the stigma, and both organs matured near together. Above all, and completely closing the entrance to the tube, was a dense mass of hair. Supposing, on prevailing theories of cross fertilization by insect agency, that an insect should visit the verbena flower for honey, and the trunk get covered with pollen, the rather large trunk would get stripped clean of its pollen in wiping against the mass of hair on withdrawal; or, if a little did remain in spite of the brushing, would most likely get thoroughly cleaned on the visit to the next flower. Hybridization by this agency, and there appeared to be no other in this case in nature, was well nigh impossible. He had always regarded the dangers of hybridization, and consequent confusion of species, as an *à priori* argument against the prevalent theories of cross fertilization by insect agency being any part of a great plan for the development of the races of plants. At any rate in *Verbena*, the mass of hair in the throat could not by any interpretation be regarded as an arrangement in the aid of cross breeding. It was an obstruction, and, in his opinion, an insurmountable one.

The striking form of Verbena between *V. stricta* and *V. urticæfolia*, sent to him by his distinguished correspondent, he should regard as no hybrid, but as a form evolved in the due course of an inherent guidance from the former species, a power continuously at work, and which "external circumstances" tended as often to repress as to aid.

SEPTEMBER 12.

The President, Dr. RUSCHENBERGER, in the chair.

Thirty-two members present.

A paper entitled "On the Lingual Dentition, Jaw and Genitalia of Carelia, Onchidella, and other Pulmonata," by Wm. G. Binney, was presented for publication.

Welwitschia mirabilis.—Mr. THOMAS MEEHAN called attention to a specimen of *Welwitschia mirabilis*, exhibited in the Portuguese African section of the Centennial Exhibition, as well worthy of the examination of members of the Academy. The trunk in this specimen is vase form, and about two feet across, and stands about two feet from the ground.